

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier. Claims 1, 7-8, 12, 14, 16-17, 20, and 22-24 are currently being amended. Claims 25-28 are being added. After amending the claims as set forth above, claims 1-28 are now pending in this application.

I. Claim Rejections - 35 U.S.C. § 112

The Examiner rejected claim 17 on the basis that the limitation “the transition path segment” lacks antecedent basis. In response, Applicant has amended claim 17 to ensure proper antecedent basis for this limitation. Accordingly, withdrawal of the rejection under 35 U.S.C. § 112 is respectfully requested.

II. Claim Rejections - 35 U.S.C. § 102 and § 103

The Examiner rejected claims 1, 3-12, 15-17, 19-20, and 23-24 under 35 U.S.C. § 102(e) as being unpatentable by Yutkowitz (“Yutkowitz”; U.S. Pat. No. 6,782,306). The Examiner rejected claims 2 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Yutkowitz, further in view of Sato et al. (“Sato”; U.S. Pat. No. 5,995,856). The Examiner rejected claims 13 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Yutkowitz, further in view of Letcher, Jr. (“Letcher”; U.S. Pat. No. 5,581,672).

Independent Claim 1

Claim 1 has been amended to more clearly define around Yutkowitz. Claim 1 as amended recites “a user instruction configured to permit a user to specify one or more weighting points for a transitioning path segment ..., the weighting points and the transitioning path segment extending between first and second additional path segments...,

[and] the control logic being configured to generate the transitioning path segment based on the weighting points.” Claim 1 further recites “spline computation logic configured to generate a spline curve forming the transitioning path segment, the spline computation logic being configured to generate the spline curve based on ... a series of control points extending from the first path segment to the second path segment, wherein the spline computation logic is configured to generate the control points based on the weighting points and based on the boundary conditions, wherein the spline curve extends near the weighting points and passes through at least some of the series of control points....”

Yutkowitz does not teach or suggest claim 1 because Yutkowitz does not teach or suggest a user instruction having these features. In Yutkowitz, the user is provided with a user interface that permits the user to generate a part program 16 which includes data specifying a series of points along a desired path. (Yutkowitz, col. 5, lines 47-60.) The part program 16 is provided to a stage processor 18, which determines where in the commanded motion path it is desirable to use spline interpolation (stage 20) and includes a forward transform which performs the spline calculation (stage 32). (Col. 5, line 62 to col. 6, line 2; col. 6, lines 30-39).

Yutkowitz, therefore, does not appear to relate to the problem of providing a user with a user instruction that permits a user to specify weighting points for a transitioning path segment. In claim 1, the user instruction is configured to permit a user to specify one or more weighting points which may be used to generate a transitioning path segment extending between first and second additional path segments. The motion control logic uses the weighting points to generate control points, and in turn uses the control points to generate a spline curve which forms the transitioning path segment. In Yutkowitz, the user specifies a series of points along a desired path. The path appears to be generated by performing an interpolation of the points provided by the user. There does not appear to be any teaching or suggestion of a user instruction that permits a user to specify weighting points for a transitioning path segment. Further, there does not appear to be any teaching or suggestion of generating a separate set of control points for the transitioning path segment based on weighting points specified by the user.

Accordingly, independent claim 1 is believed to be allowable, and such action is respectfully requested.

Independent Claim 16

Independent claim 16 recites “receiving one or more weighting points for a transitioning path segment by way of a user instruction, the transitioning path segment extending between first and second additional path segments” and “generating a plurality of control points for a plurality of adjacent spline segments based on boundary conditions and the weighting points, the plurality of adjacent spline segments forming the transitioning path segment.”

Yutkowitz does not teach or suggest these features. In Yutkowitz, there does not appear to be any teaching or suggestion of a user instruction that permits a user to specify weighting points for a transitioning path segment. Further, there does not appear to be any teaching or suggestion of generating a separate set of control points for the transitioning path segment based on the weighting points specified by the user.

Accordingly, independent claim 16 is believed to be allowable, and such action is respectfully requested.

Independent Claim 23

Independent claim 23 recites “an instruction that permits a move to be specified by specifying one or more weighting points for a transitioning path segment [that connects] first and second additional path segments in the multi-dimensional coordinate system” and “wherein the instruction permits the move to be specified by specifying the weighting points for the spline path without having to specify control points for the spline path, the control points for the spline path being generated by the motion control logic based on the weighting points, and wherein the spline path passes through at least some of the control points and not the weighting points.”

Yutkowitz does not teach or suggest these features. In Yutkowitz, there does not appear to be any teaching or suggestion of a user instruction that permits a user to specify weighting points for a transitioning path segment. Further, there does not appear to be any teaching or suggestion of a user instruction that permits a transitioning path segment to be specified by specifying weighting points for the spline path without having to specify control points for the spline path, wherein the spline path passes through at least some of the control points and not the weighting points. In Yutkowitz, the path appears to be generated by performing an interpolation of the points provided by the user. There does not appear to be a separate set of control points generated for the transitioning path segment based on weighting points specified by the user.

Accordingly, independent claim 23 is believed to be allowable, and such action is respectfully requested.

Independent Claim 24

Independent claim 24 recites “a user instruction which permits the user to specify one or more weighting points for a transitioning path segment ..., the transitioning path segment extending between first and second additional path segments” and “wherein the control logic includes spline computation logic configured to generate a spline curve which extends near the weighting points, the spline curve forming the transitioning path segment, the spline computation logic being configured to generate control points based on the weighting points, the spline curve being generated based on the control points.”

Yutkowitz does not teach or suggest these features. In Yutkowitz, there does not appear to be any teaching or suggestion of a user instruction that permits a user to specify weighting points for a transitioning path segment. Further, there does not appear to be any teaching or suggestion of control logic configured to generate control points based on the weighting points specified by the user. In Yutkowitz, the path appears to be generated by performing an interpolation of the points provided by the user. There does not appear to be a separate set of control points generated for the transitioning path segment based on weighting points specified by the user.

Accordingly, independent claim 24 is believed to be allowable, and such action is respectfully requested.

Other Claims

The Applicant notes with appreciation the Examiner's indication that claims 14 and 22 recite allowable subject matter. Claims 14 and 22 have been rewritten in independent form. Claims 14 and 22 as rewritten incorporate the limitations of their respective claims except that "a plurality of weighting points" has been changed to "one or more weighting points" to make clear that the claims cover the situation where only one weighting is specified and information for the remaining weighting points is deduced from boundary conditions (as described in the specification).

The Examiner cites Sato and Letcher in connection with features recited in dependent claims 2, 13, 18 and 21. However, it does not appear that Sato and Letcher overcome the deficiencies of Yutkowitz in connection with independent claims 1, 16, 23, and 24. Accordingly, the remaining claims are dependent claims and are believed to be allowable for at least the reasons their respective base claims are allowable.

III. Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 06-1447. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 06-1447. If any extensions of time are needed for timely acceptance of

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papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R.

§ 1.136 and authorizes payment of any such extensions fees to Deposit Account No. 06-1447.

Respectfully submitted,

Date Jan 9, 2006

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